Welcome

Welcome Overview

Volunteer monitoring began at Welcome Lake in 1996 and has continued through 2004. The data indicate this lake is moderate in primary productivity (mesotrophic) with good water quality.

Welcome Lake has no public access boat launch, but residents should watch for Eurasian milfoil, Brazilian elodea, as well as other noxious weeds.

Physical Parameters

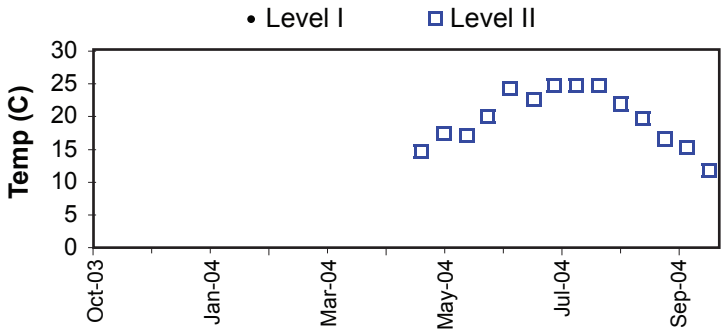
Secchi transparency ranged from 1.5 to 3.3 m from April through October, averaging 2.4 m which placed it in the lower mid range of small lakes monitored for clarity in 2004. Water temperatures reached 24.5 degrees Celsius, which was in the lower mid range for the group.

There were no water level or precipitation records for the year.

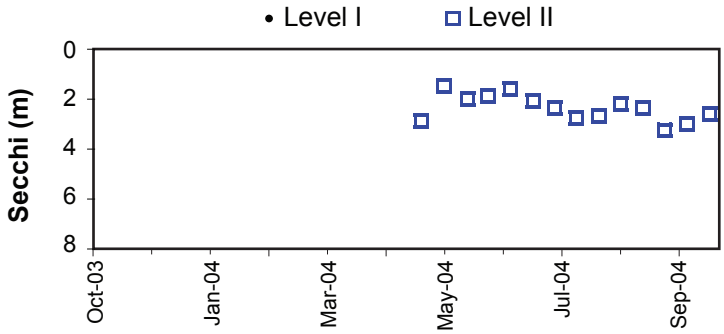
Nutrient Analysis and TSI Ratings

Total nitrogen was stable through mid September when it began to increase. Total phosphorus remained fairly steady throughout the period. The N:P ratio ranged from 25 to 51, averaging 34 which suggested poor conditions for nuisance bluegreen growth much of the time.

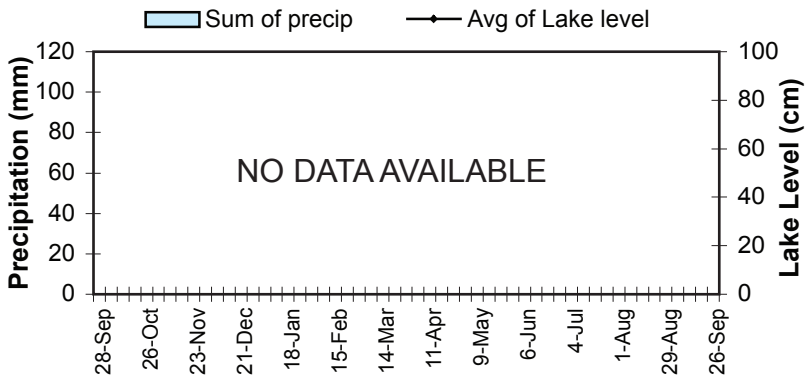
Lake Temperature



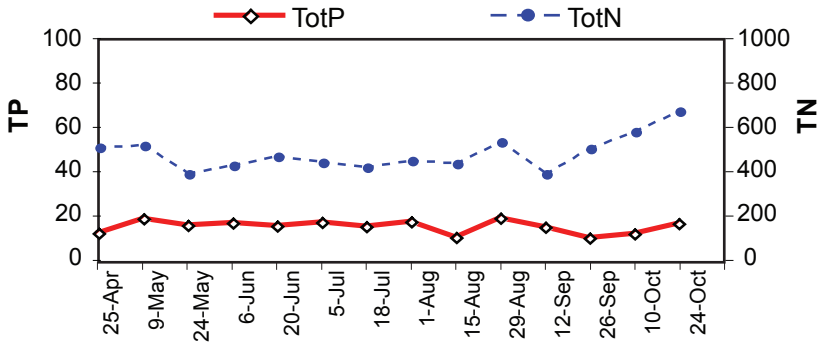
Secchi Depth



Lake Level and Precipitation



Nutrient Analysis



Profile data indicate thermal stratification was not strongly maintained, and phosphorus did not build up in the deeper water through the summer. Chlorophyll data indicated that algae concentrations were approximately equivalent in shallow and deep water on both profile dates.

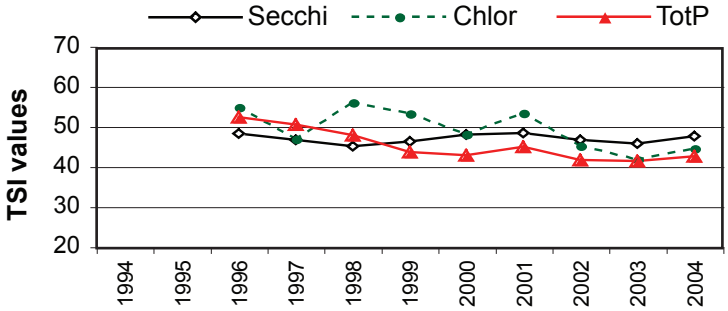
In 2004 the average TSI values were in the mid range for mesotrophy, similar to 2002 and 2003.

Chlorophyll Concentrations and Algae

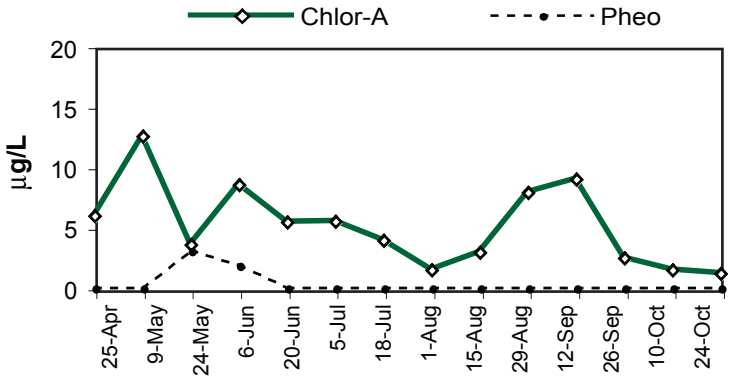
Chlorophyll concentrations at 1m were variable through the season, with peaks in early May and June and again in mid September. The May peak was dominated by the diatom *Asterionella formosa*, while the July peak was characterized by an unidentified chrysophyte species. The chrysophyte *Dinobryon* prevailed during the summer and increased in September to form the early fall peak.

Date	Secchi	depth-m	degC	Chlor-A	TP µg/L	TN µg/L
5/24/04	2.0	1	16.8	3.20	15.4	389
		3.5	12.8	5.53	19.7	503
8/29/04	2.2	1	21.7	8.00	18.6	533
		3.5	20.2	6.40	18.3	522

TSI Ratings



Chlorophyll a Concentrations (ug/L)



Common Algae

	Group
Dinobryon spp.	Chrysophyta
Asterionella formosa	Bacillariophyta
unidentified single cells	Chrysophyta

Welcome

2004 Level I Data not available

2004 Level II Data

Date (2004)	Temp (°C)	Secchi (m)	Chl-*a* (µg/l)	TP (µg/l)	TN (µg/l)	Algae Obsv.	N:P	Calculated TSI		
								Secc	chl-a	TP
25-Apr	14.4	2.9	6.09	11.9	508	3	43	44.6	48.3	39.9
9-May	17.2	1.5	12.70	18.3	517	3	28	54.1	55.5	46.1
24-May	16.8	2.0	3.68	15.4	389	3	25	50.0	43.4	43.6
6-Jun	19.8	1.9	8.65	16.6	426	3	26	50.7	51.7	44.7
20-Jun	24.0	1.6	5.57	15.1	467	3	31	53.2	47.4	43.3
5-Jul	22.4	2.1	5.61	16.7	440	3	26	49.3	47.5	44.8
18-Jul	24.5	2.4	4.01	15.0	419	3	28	47.4	44.2	43.2
1-Aug	24.5	2.8	1.60	16.9	448	3	27	45.1	35.2	44.9
15-Aug	24.5	2.7	3.04	10.1	434	3	43	45.7	41.5	37.5
29-Aug	21.7	2.2	8.01	18.6	533	2	29	48.6	51.0	46.3
12-Sep	19.5	2.4	9.13	14.5	390	3	27	47.4	52.3	42.7
26-Sep	16.3	3.3	2.60	9.8	502	2	51	42.8	39.9	37.1
10-Oct	15.0	3.0	1.60	11.5	578	2	50	44.1	35.2	39.4
24-Oct	11.5	2.6	1.30	16.1	671	1	42	46.2	33.1	44.2
	Temp (°C)	Secchi (m)	Chl-*a* (µg/l)	TP (µg/l)	TN (µg/l)	Algae	N:P	Calculated TSI		
								Secc	chl-a	TP
Mean	19.4	2.4	5.3	14.8	480.1	2.6	34	47.8	44.7	42.7
Median	19.7	2.4	4.8	15.3	457.5	3	28	47.4	45.8	43.5
Min	11.5	1.5	1.3	9.8	389.0	1	25	42.8	33.1	37.1
Max	24.5	3.3	12.7	18.6	671.0	3	51	54.1	55.5	46.3
Count	14	14	14	14	14	14	14	14	14	14

TSI Average = 45.1